

PUBLIC VERSION

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**BEFORE
THE OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE
WASHINGTON, D.C.**

IN THE MATTER OF STEEL

)
) **SECTION 201 INVESTIGATION**
)

**EXHIBITS
TO
EXCLUSION REQUEST FOR GALVANIZED DUAL PHASE COATED STEEL PRODUCTS
ON BEHALF OF
RAUTARUUKKI OYJ**

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November 13, 2001

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INDEX OF EXHIBITS

Exhibit A RAUTARUUKKI Product Brochure: “RAGAL® LITEC DPF Dual Phase Steels”

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BEFORE THE OFFICE OF THE U.S. TRADE REPRESENTATIVE
EXCLUSION REQUEST FOR GALVANIZED DUAL PHASE COATED STEEL PRODUCTS
ON
BEHALF OF RAUTARUUKKI OYJ
SECTION 201 INVESTIGATION: STEEL

EXHIBIT A

NOVEMBER 13, 2001

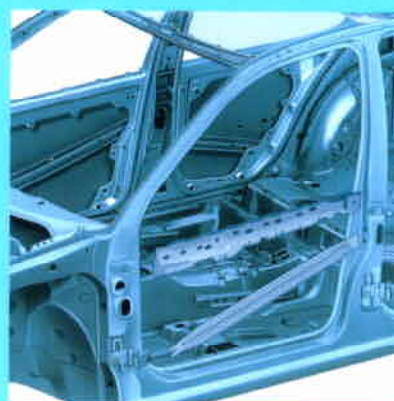
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dual phase steels

by rautaruukki

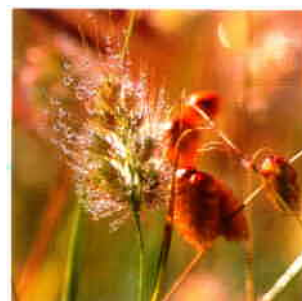
RAGAL® LITEC DPF

higher strength – lower mass – less environmental damage



RAUTARUUKKI
STEEL

| sophisticated | technology |

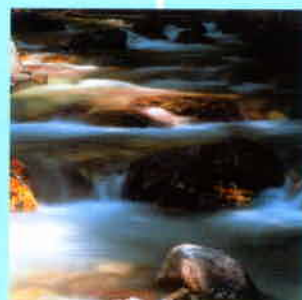


Steel its product variety and our environment

Steel is the technological material of the century. Thanks to its numerous characteristics, its product variety and its customised products for the most diverse applications, steel is regarded as an indispensable material for almost all areas of modern construction. Furthermore, steel is one of the few long-life and fully recyclable materials. For no other material is there such a proven and efficient recycling system.

From steel manufacture through to surface treatment, we at Rautaruukki attach great importance to all aspects of environmental protection. This is why - when developing our innovative steels - we consider the advantages for mankind and nature.

Due to our consistent environmental policy, Raahel Steel Works was the first European steel producer to obtain both the ISO 14001 and the European EMAS certificates for environmental protection.



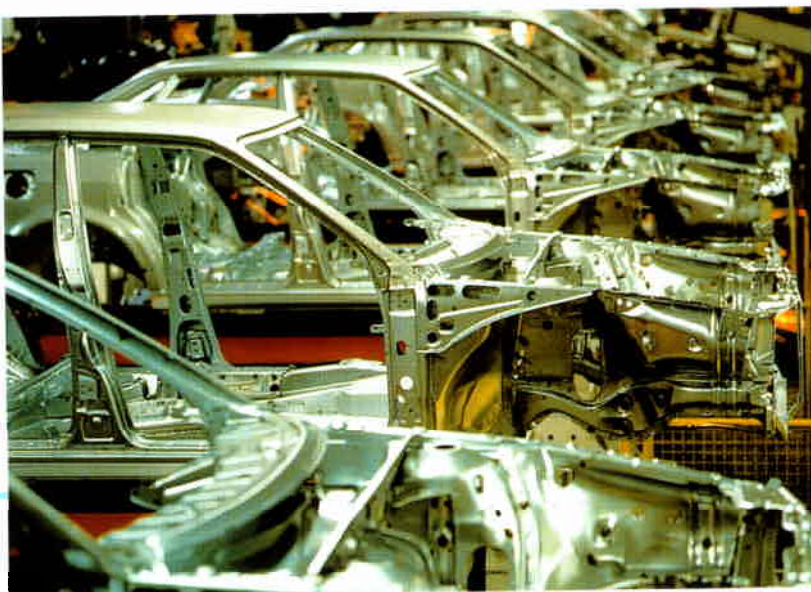
innovative steels

for the automotive industry

Due to its diverse variety of technical properties, steel is the leading raw material in the automotive industry. As today's aim is to develop lighter, and hence more economical vehicles, lightweight concepts are of great importance in all areas of vehicle manufacture. High strength steels offer the best requirements for lightweight concepts and provide enormous future development potential.

The new ultra high strength steel grades by Rautaruukki enable lighter constructions, thus making it possible to save resources during manufacture, and energy during the product's lifetime. And all this without compromising safety.

After successfully developing an ultra light steel auto body in 1998 as a result of the ULSAB project (**UltraLight Steel Auto Body**), the interest in using steel for energy and cost saving cars has increased significantly. The project included the development of an ultra light body-in-white for mass production, consisting of more than 90 % of high and ultra high strength steels and weighing only 203 kg without closures. Consequently, the body-in-white is 25 % lighter than the benchmarked average.



Side impact
at 50 km/h (in MPa)

before impact



after 4 milliseconds



after 20 milliseconds



after 40 milliseconds



after 60 milliseconds



after 80 milliseconds





With the actual international ULSAB-AVC project (Advanced Vehicle Concepts), 33 steel producers and Porsche Engineering Services/USA are pursuing the goal of offering more solutions to meet the changing demands on the automobiles of the future. Rautaruukki is participating in all three projects.

ulsab-avc, ulsac, ulsas

ULSAB-AVC

The objectives of the ULSAB-AVC project are to achieve further weight savings and to demonstrate that the innovative use of steel in vehicle construction has additional functional and ecological advantages to offer. The project is not working on the basis of today's requirements, but those foreseen for 2004. The project's priorities are lower fuel consumption, improved passenger safety, mature manufacturing technologies, reasonable prices, and increased recyclability. All in accordance with the future's demands for environmentally friendly vehicles.



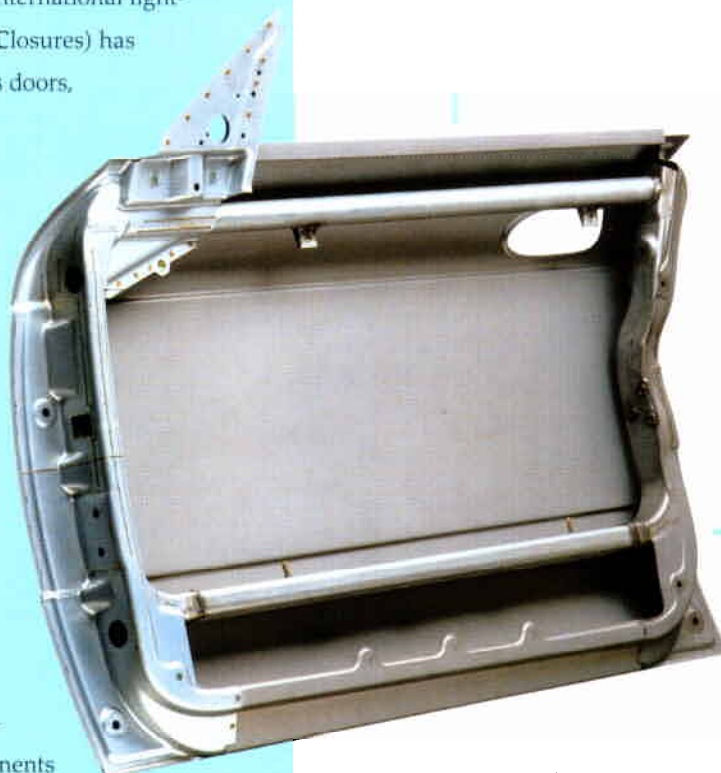
ULSAC

The auto body is not the only weight saving potential. The international lightweight construction project ULSAC (UltraLight Steel Auto Closures) has the objective of reducing the weight of cars' closures such as doors, hoods, decklids and hatches. The result is a frameless door, which is 42 % lighter than the benchmarked average of frameless doors, and does not compromise safety or structural performance.

The basis for the mass reduction is the use of high and ultra high strength steels, inter alia dual phase steels as well as the introduction of new manufacturing technologies such as tailored blanks and hydroforming.

ULSAS

The international ULSAS project (UltraLight Steel Auto Suspension) deals with the development of lightweight components for vehicle suspensions.



The ULSAC frameless door weighs only 10.47 kg.



Weight saving for automotive construction parts requires an overall plan in which the materials, the construction and the production are well-suited to one another. The use of ultra high strength steel strip makes it possible to reduce strip thickness, whilst improving the stiffness of structural components, and achieving a superior crash behaviour. This offers considerable weight saving potential.

RAGAL® LITEC DPF steels

Rautaruukki's hot dip galvanised dual phase steels

When reducing strip thickness, special attention must be paid to the corrosion protection of the steel. This demand can be met through continuously hot dip galvanising the steel surface. The resulting cathodic protection ensures that the steel neither rusts at the cutting edges, nor where the coating may be damaged.

RAGAL LITEC DPF steels are hot dip galvanised low alloy steels with a multiphase microstructure. Within the ferritic matrix, there is a second constituent - an interstitial plateau of martensite. RAGAL LITEC DPF steels achieve tensile strength from 600 to over 1000 N/mm².

less is more



RAGAL® LITEC DPF steels are ideal products for safety components in automotive construction, for example for side impact beams.



Forming and joining

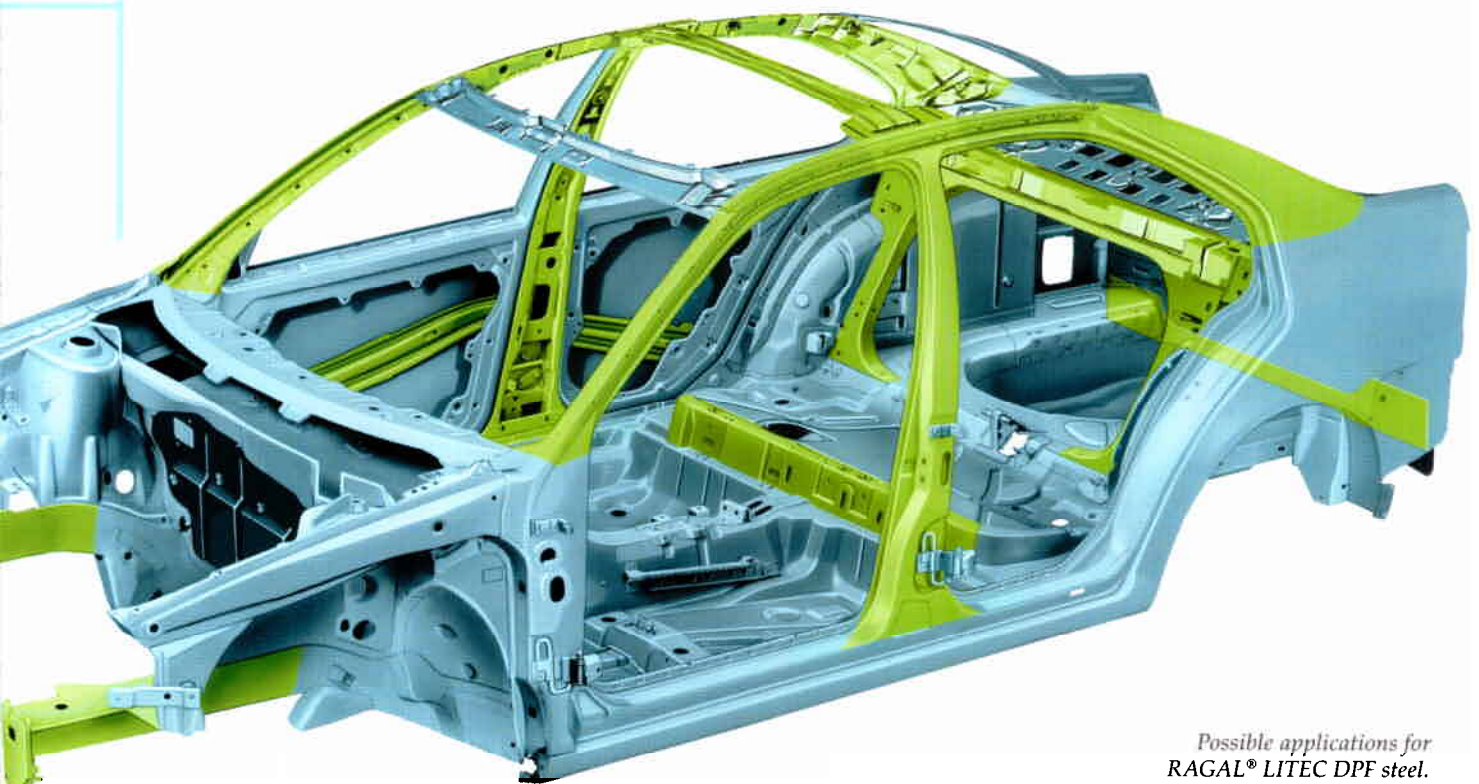
Despite the high strength values of RAGAL LITEC DPF steels, they are equally suitable for cold forming due to their excellent formability by virtue of the multiphase microstructure. The work hardening of the steel during forming is especially advantageous. The steel grades used and the structural component geometry have to be harmonised in order to provide optimum solutions for applications. During steel production, there are several opportunities for adapting the material to specific applications.

The joining of RAGAL LITEC DPF steels can be done using any of the processes that are also applied for softer grades of steel. However, the processing conditions must be modified to match the material's mechanical-chemical parameters.

Applications

RAGAL LITEC DPF steels demonstrate high strength, good forming properties and high strain hardening potential, making them particularly suitable for applications where the demand for a structural component's stiffness together with the absorption of forming energy are high. Applications can be found, for example, as safety components in automotive construction. A good example for the use of RAGAL LITEC DPF steels are side impact beams, which guarantee the passengers' safety. RAGAL LITEC DPF steel is ideally suited for this application, because it secures the door structural properties to a high degree, and protects passengers in the event of a side impact.

Further possible applications of RAGAL LITEC DPF steels in automotive construction are other components with a high crash relevancy, such as pillars, bumpers, frame and cross beams.



*Possible applications for
RAGAL® LITEC DPF steel.*

delivery programme

Grades and mechanical properties

Steel grade		Yield strength (N/mm ²)	Tensile strength (N/mm ²) min	Elongation A ₈₀ min %
RAGAL LITEC	600 DPF	350 – (500)	600 – (700)	18
RAGAL LITEC	700 DPF	400 – (600)	700 – (800)	14
RAGAL LITEC	800 DPF	500 – (700)	800 – (900)	10
RAGAL LITEC	900 DPF	600 – (800)	900 – (1000)	8
RAGAL LITEC	1000 DPF*	700 – (900)	1000 – (1100)	6

* under development

Modified values by agreement.

Dimensions

Steel grade		Thickness (mm)
RAGAL LITEC	600 DPF	0.70 – 2.00
RAGAL LITEC	700 DPF	0.90 – 1.60
RAGAL LITEC	800 DPF	0.90 – 1.60
RAGAL LITEC	900 DPF	0.90 – 1.60
RAGAL LITEC	1000 DPF*	0.90 – 1.60

* under development

Special dimensions by agreement.

Limiting dimensions and form tolerances in accordance with EN10143.

Coatings and coating weights

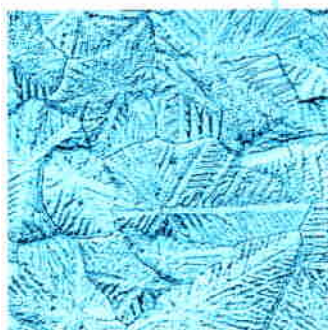
	(g/m ²)*	(µm)**
Zinc (Z)	100 – 350	7 – 25
Galfan (ZA)***	95 – 300	7 – 23

* g/m² is the respective total coating weight for both surfaces.

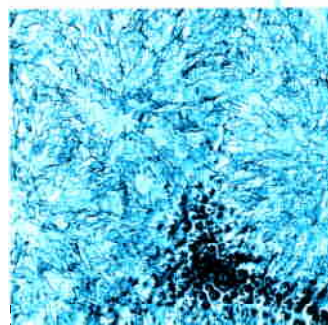
** The coating weight (µm) is the standard value for the calculated average (g/m²) of three trials for one surface.

*** Galfan by agreement.

Galfan is a zinc/aluminium coating, which contains approximately 95 % zinc and 5 % aluminium. Advantages over zinc-only coatings are improved forming properties and an increased corrosion resistance.



Microscope photograph
of a lead-free surface.



Microscope photograph
of a Galfan surface.

Surface quality

A: normal surface

B: improved surface

Improved surface is obtained by skin pass rolling.

Surface treatment

C: chemically passivated

Chemical passivation protects the surface against moisture and prevents corrosion.

O: oiled

Oiling provides improved protection from corrosion. The factory-provided protective oil is not drawing oil. By agreement, it is possible to use prelube oil to improve the formability.

CO: chemically passivated and oiled

This combination can be arranged if increased corrosion protection is required.

S: sealed by an organic dry film (AFP)*

Sealing uses a transparent organic dry film of approximately 1 μm thickness. It provides additional corrosion protection, particularly against fingerprints; it offers increased sliding properties during forming; and can be used as a primer prior to subsequent painting.

* by agreement



quality, reliability and service



Customer-oriented solutions provided by the Hämeenlinna Works.

Rautaruukki Steel

Rautaruukki is the leading Scandinavian steel producer with an annual turnover of 2.7 billion EURO and has 13 000 employees. Rautaruukki has production facilities in 14 European countries and sales offices on three continents. The Rautaruukki flat steel products division includes hot rolled and cold rolled as well as coated steel strip.

We at Rautaruukki are internationally known for our broad product range, and our high degree of upgrading activities. Comprehensive customer-oriented solutions based on cost-efficient production are among our highest priorities at Rautaruukki. As a "Partner in Steel", Rautaruukki has a good reputation for its reliable delivery.

You can rely on us

Product quality is a very important factor when choosing a suitable supplier. Through continuously investing in various production processes, we are strengthening our position as one of Europe's leading suppliers of surface-coated sheet products even further. However, the high quality of our products is only one reason for our success - seamless service and proven reliability are just as important to us. We know what the consequences of downtime and production shut-down to a modern industrial company can be, and therefore we take our responsibility as a supplier very seriously.

Our strength lies in sophisticated logistics and a committed team which is at your call round the clock. You can rely on us.



High reliability and optimum service in one package.



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